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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,250	11/17/2003	Hai Deng	42P17681	6528

7590 02/20/2007  
Edwin H. Taylor  
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Sunnyvale, CA 94085

EXAMINER
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NGUYEN, DAO H

ART UNIT	PAPER NUMBER
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2818

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/20/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/716,250	Applicant(s) DENG ET AL.	
	Examiner Dao H. Nguyen	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-18 is/are allowed.
- 6) ☒ Claim(s) 19-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. In response to the communications dated 12/26/2006, claims 1-24 are active in this application.

**Claim(s) 25-29 have been cancelled** (see page 8 of the Amendment filed 12/27/2005).

Applicant is reminded that cancelled claims must be provided with proper status identifier.

### Remarks

2. Applicant's remarks, filed 12/26/2006, have been fully considered. Arguments relating to claims 1-18 have been found persuasive; however, those relating to claims 19-24 have not been found persuasive.

Particularly, Leu et al. does disclose the claimed composite cited in claim 19. Such composite comprises a zeolite and a carbon doped oxide. According to Merriam-Webster's dictionary, 10th edition, a composite is a solid material which is composed of two or more substances having different physical characteristics and in which each substance retains its identity while contributing desirable properties to the whole. Figs. 2 of Leu et al., for example, show an interdielectric layer 105, which is a solid material and composed of zeolite 106, 102 (see Leu's paras. [0009-0010]) and CDO 124 (para. [0025]) (or alternately, zeolite 124 (see Leu's para. [0027]), and CDO 102 (para [0010]))

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which having different physical characteristics and in which each substance retains its identity while contributing desirable properties to the whole. Clearly, Leu et al. does disclose the claimed composite.

### **Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claim(s) 19-21, and 23-24 are rejected under 35 U. S. C. § 102 (e) as being anticipated by U.S. Patent Application Publication No. 2005/0236714 by Leu et al.**

*The applied reference has a common Assignee with the instant application.*

*Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131. See MPEP section 706.02(b).*

Regarding claim 19, Leu discloses a method comprising forming a zeolite-carbon doped oxide (CDO) composite interlayer dielectric 105 on an underlying layer 100 (figs. 2 shows an interdielectric layer 105, which is a composite of zeolite 106, 102 (see Leu's paras. [0009-0010]) and CDO 124 (para. [0025]); or, alternately, zeolite 124 (see Leu's para. [0027]), and CDO 102 (para [0010]));

etching a via opening 118 and a trench 116 in the zeolite-CDO composite interlayer dielectric; and

forming a conductive material 104/107 in the via opening and the trench. See figs. 1-2, and paragraphs [0008-0027].

Regarding claim 20, Leu discloses the method wherein forming the zeolite-CDO composite interlayer dielectric on the underlying layer comprises:

depositing a zeolite-solvent solution 102 on the underlying layer 100;

drying the zeolite-solvent solution to remove at least some of the solvent to form a zeolite film (paragraph [0027]); and

depositing a CDO 122 in the zeolite film by chemical vapor deposition to form a zeolite-CDO composite film (paragraph [0023];

heating the zeolite-CDO composite film; and cooling the zeolite-CDO composite film (paragraphs [0012-0014]).

Regarding claim 21, Leu discloses the method wherein depositing the zeolite-solvent solution on the underlying layer comprises spin-coating the zeolite-solvent solution on the underlying layer. See paragraph [0027].

Regarding claims 23 and 24, Leu discloses the method comprising all claimed limitations.

### **Claim Rejections - 35 U.S.C. § 103**

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim(s) 22 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Leu et al. (U.S. Patent Application Publication No. 2005/0236714).**

Regarding claims 8 and 22, Leu discloses the method comprising all claimed limitations, except for teaching that depositing the zeolite-solvent solution on the underlying layer comprises dip-coating the zeolite-solvent solution on the underlying layer.

However, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Leu so that the zeolite-

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solvent solution being deposited on the underlying layer by a dip-coating method, because such method is well known in the art, and that those skilled in the art will recognize that such modification and variations can be made without departing from the spirit of the invention of Leu, and that it would involve only routine skills in the art.

### **Allowance**

7. Claims 1-18 are allowed.

### **Conclusion**

8. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

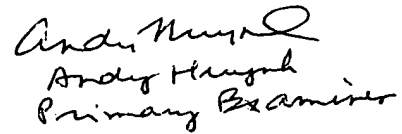
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dao Nguyen whose telephone number is (571)272-1791. The examiner can normally be reached on Monday-Friday 9:00am - 6:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith, can be reached on (571)272-1907. The fax numbers for all communication(s) is (571)273-8300.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1625.

A stylized handwritten signature in black ink, appearing to read 'Dao H. Nguyen'.

Dao H. Nguyen  
Art Unit 2818  
February 14, 2007

A handwritten signature in black ink, appearing to read 'Andy Heng'.

Andy Heng  
Primary Examiner